



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Re: Appeal to the Board of Patent Appeals and Interferences

In re PATENT application of

Group Art Unit: 1743

FAIRLIE et al.

Application No. 10/829,434

Examiner: Soderquist, Arlen

Filed: April 22, 2004

Docket: 62-337

Title: Energy Distribution Network

Date: November 6, 2007

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

- 1 **NOTICE OF APPEAL:** Applicant hereby appeals to the Board of Patent Appeals and Interferences from the last decision (not Advisory Action) of the Examiner dated March 12, 2007
- 2 **BRIEF** on appeal in this application attached
- 3 An **ORAL HEARING** is respectfully requested under Rule 194 (due two months after Examiner's Answer -- unextendable).
- 4 Reply Brief is attached in triplicate (due two months after Examiner's Answer -- unextendable).

5. FEE CALCULATION:	Large/Small Entity	
If box 1 above is X'd, see box 12 below <u>first</u> and decide: enter	\$510/255*	\$ 255.00
If box 2 above is X'd, see box 12 below <u>first</u> and decide: enter	\$510/255*	\$
If box 3 above is X'd, see box 12 below <u>first</u> and decide: enter	\$1030/515*	\$
If box 4 above is X'd, enter nothing	-0 - (no fee)	
6. <u>Original</u> due date: August 6, 2007		
7. Petition is hereby made to extend the <u>original</u> due date to cover the date this response is filed for which the requisite fee is attached	(1 mo) \$120/\$60 (2mos) \$460/\$230 (3mos) \$1050/\$525 (4mos) \$2230/\$1115	525
8. Enter any previous extension fee paid [] previously since above <u>original</u> due date (item 6); [] with concurrently filed amendment	-0	
9. Subtract line 8 from line 7 and enter: Total Extension Fee = +525		
9a.	Terminal Disclaimer Fee	\$
10.	TOTAL FEE ATTACHED =	\$ 780.00

11. *Fee NOT required if/since paid in prior appeal in which the Board of Patent Appeals and Interferences

did not render a decision on the merits.

CHARGE STATEMENT: The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficient fee only) now or hereafter relative to this application and the resulting Official document under Rule 20, or credit any overpayment, to our Account/Order No. 50-1130/62-337 for which purpose a duplicate copy of this sheet is attached. This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal form is filed.

Atty: *Edward J. Stemberger*
Edward J. Stemberger

Reg. No. 36,017

Tel: (202) 261.1014

Fax: (202) 887-0336

Customer No. 20736

Docket No.: 62-337

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of :
FAIRLIE et al. :
Serial No.: 10/829,434 : Group Art Unit: 1743
Filed: April 22, 2004 : Examiner: Soderquist, Arlen
For: ENERGY DISTRIBUTION NETWORK

MAIL STOP: APPEAL BRIEF – PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

This is an appeal of the twice rejected claims 25-27, 29-31, 36, 38-43, 45-61, 63, 64, 66 and 82-103 in the above-identified patent application.

This Appeal Brief is submitted as required by 37 C.F.R. §41.37.

1. Real Party in Interest:

This application is assigned to Stuart Energy Systems Corp., the real party of interest.

2. Related Appeals and Interferences:

There are no other appeals or interferences known to Appellant that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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3. Status of Claims:

Claims 25-27, 29-31, 36, 38-43, 45-61, 63, 64, 66 and 82-128 are pending in this application. Claims 1-24, 28, 32-35, 37, 44, 62, 65, 67-81 are canceled. Claims 104-128 are withdrawn. Claims 25-27, 29-31, 36, 38-43, 45-61, 64, 66, and 82-103 stand rejected by the Examiner, and are appealed.

4. Status of any Amendment Filed Subsequent to Final Rejection:

Since the rejection of the appealed claims was presented in the non-final March 12, 2007 Office Action, no Amendment was filed in response to a Final Rejection. This Brief responds to the March 12, 2007 Office Action.

5. Summary of Claimed Subject Matter:

The claimed subject matter includes independent claim 25, and dependent claims 26-27, 29-31, 36, 38-43 and 46-61, 63-64, 66, and 82-103.

Independent claim 25 specifies an energy distribution network including at least one hydrogen generator (10 in Fig. 1, page 13, line 17-18) for generating hydrogen using electric energy received from at least one source of electric energy (12 in Fig. 1, page 13, lines 18-20). At least one hydrogen storage reservoir (16 in Fig. 1, page 13, line 20 and 726 in Fig. 7A, page 20, lines 27-29 and see definition of "hydrogen fuel user means" at page 5, lines 21-24) is provided for storing at least some of the hydrogen produced by the at least one hydrogen generator. At least one controller (14 in Fig. 1, page 13, lines 26-30) is in communication with the at least one hydrogen generator and the at least one hydrogen storage reservoir for controlling the generation and storage of hydrogen. The at least one controller has a central processor and computer (see definition of "controller" at page 4, line 25) for receiving and processing data and for controlling the generation and storage of hydrogen based on said data, said data including data pertaining to a demand for hydrogen (page 13, lines 23-34), data pertaining to availability of electric energy (page 14, lines 1-5) and data pertaining to the status of said at least one hydrogen generator (page 14, lines 6-11).

Claim 36 adds to the network of claim 25 in that the data pertaining to the availability of electric energy is selected from the group consisting of the amount of energy available, the nature of power available, the time of availability of the energy, the type of energy source available, the unit price per increment of energy available, the duration of delivery of said energy resource, and combinations thereof (page 4 lines 27 to page 5 lines 2).

Claim 39 adds to the network of claim 25 wherein a compressor (26 in Fig. 3, page 17, lines 4-9) is operably connected to at least one of the hydrogen generator and said hydrogen storage reservoir for compressing hydrogen to a desired pressure.

Claim 40 adds to the network of claim 39 wherein the data that is received and processed by the controller includes data pertaining to the status of said hydrogen storage reservoir and wherein said controller controls the generation and storage of compressed hydrogen when the hydrogen pressure in said at least one hydrogen storage reservoir falls below a selected minimum value (page 6, lines 2-22).

Claim 41 adds to the network of claim 25 wherein the data that is received and processed by the controller includes data pertaining to the status of said hydrogen storage reservoir and wherein the controller controls the generation and storage of hydrogen when the amount of hydrogen stored in the at least one hydrogen storage reservoir falls below a predetermined amount (page 10, lines 11-16).

Claim 43 adds to the network of claim 25 wherein further comprising a user activation interface for receiving data concerning a demand for hydrogen (page 13, line 25).

Claim 45 adds to the network of claim 25 wherein the data that is received and processed by the controller is selected from the group consisting of: the amount of hydrogen required by a hydrogen user (page 4, line 29); time of delivery of electric energy to said at least one hydrogen generator (page 4, lines 29-30); duration of period said electric energy is to be delivered to said at least one hydrogen generator (page 4, lines 30-31); electric energy level to be sent to said at least one hydrogen generator (page 4, line 31); hydrogen pressure in said at least one hydrogen storage reservoir; (page 4, lines 31-32) rate of change in hydrogen pressure in said at least one hydrogen storage reservoir (page 10 lines 22-25); volume of said at least one hydrogen storage

reservoir (page 15, lines 17-23); price of electric energy and price forecast (page 4, line 32); and combinations thereof.

6. Grounds of Rejection to be Reviewed on Appeal:

A. Whether claims 25-27, 29-31, 36, 38-43, 45-61, 63-64, 66 and 82-103 are unpatentable under 35 USC §103(a) as obvious over U.S. Patent No. 5,592,028 to Prichard in view of U.S. Patent No. 4,084,038 to Scragg, in view of U.S. Patent No. 4,388,533 to Campbell, in view of U.S. Patent No. 6,021,402 to Takritti.

B. Whether claims 25-27, 29-31, 36, 38-43, 45-61, 63-64, 66 and 82-103 are unpatentable on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-167 of U.S. Patent No. 6,745,105.

C. Whether claims 25-27, 38, 39 42, 47-48, 50-52, 66, 84-89 and 91-92 are unpatentable on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 7-21 of U.S. Patent No. 7,181,316.

7. Arguments:

A. Claims 25-27, 29-31, 36, 38-43, 45-61, 63-64, 66 and 82-103 are patentable under 35 USC §103(a) as not being obvious over U.S. Patent No. 5,592,028 to Prichard in view of U.S. Patent No. 4,084,038 to Scragg, in view of U.S. Patent No. 4,388,533 to Campbell, in view of U.S. Patent No. 6,021,402 to Takritti

Prior to discussing this rejection, Applicant would like to discuss the Title of the Invention. The Examiner objected to the title as being “not descriptive”. Applicant disagrees. The Title is “Energy Distribution Network”. Independent claim 25 recites “An energy distribution network comprising”. Thus, the Title describes what is being claimed and is therefore considered to be descriptive.

The Examiner twice rejected independent claim 25. Claim 25 is not rendered obvious by Prichard in view of Scragg, in view of Campbell, and in view of Takritti for the following reasons.

Claim 25 recites an energy distribution network including a controller having a processor and computer that processes data for controlling the generation and storage of hydrogen based on data “pertaining to a demand for hydrogen, data pertaining to availability of electrical energy and data pertaining to the status of said at least one hydrogen generator”.

The Examiner contends that the switches 32 (or the actuators for operating the switches) of the electrolysis plant 5 of Pritchard teach a “control means” and thus the claimed controller. The Examiner contends that:

...the control means would have inherently been connected to the wind farm energy source to collect data as a part of its being able to monitor and control the system...*(emphasis added)*

Thus, Examiner states that the control means of Prichard controls the switches and then jumps to the conclusion that the control means of Prichard would collect data since it can “control the system”. There is no teaching or suggestion in Prichard of a control means to “control the system” and collect data. Controlling switches of an electrolysis plant is not a teaching or suggestion the features of claim 25, namely:

at least one controller in communication with said at least one hydrogen generator and said at least one hydrogen storage reservoir for controlling the generation and storage of hydrogen, said at least one controller having a central processor and computer for receiving and processing data and for controlling the generation and storage of hydrogen based on said data...

The Examiner is reminded that, "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).*

The Examiner cites Campbell as showing that “a computer system can monitor the amount of power produced by the power generation unit and control a hydrogen generation and storage structure to produce hydrogen and store it when the power generation unit produces more than sufficient to supply its external and internal demand.” The Examiner contends that the controller of Campbell could be used in the device of Pritchard to smooth out the variations in the ability of the wind farm to meet the demand of the external grid.

Even if the controller of Campbell were employed in the device of Pritchard, the combination would not result in the features of claim 25. In particular, claim 25 recites that the data being processed includes data pertaining to a **demand for hydrogen**, data pertaining to availability of electric energy and data pertaining to the status of said at least one hydrogen generator.

Applicant understands the Examiner’s position to be that the “controller” (e.g., switches) of Pritchard controls the storage and generation of hydrogen based on a “demand for hydrogen” since hydrogen is used or stored. Applicant disagrees.

The switches 32 of the electrolysis module of Pritchard are controlled for maximum operating efficiency (voltage) regardless of any hydrogen demand. In fact, Pritchard teaches at column 4, lines 21-23 that “a means may be provided to monitor the current density through each module and thereby provide feedback to the switch control means.” Thus, any controller (computer as in Campbell) employed in Pritchard would merely analyze voltage data to ensure an optimum operation voltage is provided for the electrolysis cells.

Furthermore, Pritchard does not teach or suggest the operation of the switches of the electrolysis cells to generate or store hydrogen based on hydrogen demand. In fact, in Pritchard, even if it is determined that more hydrogen is “needed”, the switches (e.g., controller) of the electrolysis cells could not operate to control the generation and storage of hydrogen based on this “need” if there is no wind to operate the wind farm and thus the electrolysis cells of Pritchard. There is simply no suggestion in Pritchard, Campbell or Scragg to employ a controller that controls the generation and storage of hydrogen based on data including data pertaining to **demand for hydrogen** as claimed. The prior art of record discloses processes

based on a demand for electricity, but this is not a teaching or suggestion of generation and storage of hydrogen based on a demand for hydrogen as claimed.

The Examiner submits that Takriti teaches a computer implemented risk management system that schedules the generating units of an electric utility while taking into consideration power trading with other utilities and the stochastic load on the utility system. The Examiner contends that it would have been obvious to one of ordinary skill in the art to incorporate a controlled-risk management system as taught by Takriti into the Pritchard device because of the ability to predict the need for various inputs in combination with their cost thereby reducing the cost/risks of operating the systems as taught by Takriti.

The Applicant respectfully submits that the Pritchard and Takriti references cannot be combined in the manner suggested by the Examiner. In particular, the Applicant notes that the Takriti system is directed to the generation of electricity and not to the generation of hydrogen. The system schedules the generating units of an electric utility based on input data including the price of fuel used by electric-power generators. The Applicant claims, on the other hand, a network that includes a controller for controlling the generation and storage of hydrogen based on data including data pertaining to the availability of electric energy used for generating such hydrogen. Such electric energy availability data may include data pertaining to the price of electricity. Accordingly, the Applicant submits that the control system disclosed in Takriti is not directed to the control of the generation of hydrogen and the receipt and processing of data including data pertaining to hydrogen demand, availability of electric energy and status of the hydrogen generator. Thus, even if Takriti was combined with Prichard, the combination would provide a risk management system based on the generation of electricity, not on hydrogen demand.

The Examiner has failed to specifically address the dependent claim features.

Thus, with regard to dependent claim 36, the Examiner has failed to show how the prior art of record teaches or suggests that the data pertaining to the availability of electric energy is selected from the group consisting of the amount of energy available, the nature of power available, the time of availability of the energy, the type of energy source available, the unit price

per increment of energy available, the duration of delivery of said energy resource, and combinations thereof.

With regard to dependent claim 39, the Examiner has failed to show how the prior art of record teaches or suggests a compressor operably connected to at least one of the hydrogen generator and said hydrogen storage reservoir for compressing hydrogen to a desired pressure.

With regard to dependent claim 40, the Examiner has failed to show how the prior art of record teaches or suggests that the data that is received and processed by the controller includes data pertaining to the status of said hydrogen storage reservoir and wherein said controller controls the generation and storage of compressed hydrogen when the hydrogen pressure in said at least one hydrogen storage reservoir falls below a selected minimum value.

With regard to dependent claim 41, the Examiner has failed to show how the prior art of record teaches or suggests that the data that is received and processed by the controller includes data pertaining to the status of said hydrogen storage reservoir and wherein the controller controls the generation and storage of hydrogen when the amount of hydrogen stored in the at least one hydrogen storage reservoir falls below a predetermined amount.

With regard to dependent claim 43, the Examiner has failed to show how the prior art of record teaches or suggests a user activation interface for receiving data concerning a demand for hydrogen.

With regard to dependent claim 45, the Examiner has failed to show how the prior art of record teaches or suggests that the data that is received and processed by the controller is selected from the group consisting of: the amount of hydrogen required by a hydrogen user; time of delivery of electric energy to said at least one hydrogen generator; duration of period said electric energy is to be delivered to said at least one hydrogen generator; electric energy level to be sent to said at least one hydrogen generator; hydrogen pressure in said at least one hydrogen storage reservoir; rate of change in hydrogen pressure in said at least one hydrogen storage reservoir; volume of said at least one hydrogen storage reservoir; price of electric energy and price forecast; and combinations thereof.

For these and other reasons, the §103 rejection of independent claim 25 and dependent claims 26-27, 29-31, 36, 38-43, 45-61, 63-64, 66 and 82-103 should be withdrawn.

B. Claims 25-27, 29-31, 36, 38-43, 45-61, 63-64, 66 and 82-103 are patentable due to a timely filed Terminal Disclaimer

A Terminal Disclaimer was filed on October 20, 2007 to remove the obviousness-type double patenting rejection. Apparently, acceptance of the Terminal Disclaimer has not occurred. Thus, Applicants request acceptance of this Terminal Disclaimer.

C. Claims 25-27, 38, 39 42, 47-48, 50-52, 66, 84-89 and 91-92 are patentable due to a timely filed Terminal Disclaimer

A second Terminal Disclaimer was filed with the Notice of Appeal on June 6, 2007 to remove the obviousness-type double patenting rejection. Applicants request acceptance of this Terminal Disclaimer.

Conclusion

For the reasons set forth above, it is clear that Appellant's claims 25-27, 29-31, 36, 38-43, 45-61, 64, 66, and 82-103 are patentable over the references applied. Accordingly the appealed claims 25-27, 29-31, 36, 38-43, 45-61, 64, 66, and 82-103 should be deemed patentable over the applied references. It is respectfully requested that this appeal be granted and that the Examiner's rejections be reversed.

To the extent necessary, Appellant petitions for an extension of time under 37 C.F.R. 1.136 and 37 C.F.R. 41.37(e). Please charge any shortage in fees due in connection with the filing of this paper, including any missing or insufficient fees under 37 C.F.R. 1.17(a) or 41.20(b)(2), to Deposit Account No. 50-0687, under Order No. 62-337, and please credit any excess fees to such deposit account.

Respectfully submitted,



Edward J. Stemberger
Registration No. 36,017

Customer No. 20736

November 6, 2007

CLAIM APPENDIX – CLAIMS ON APPEAL

Claims 1-24 (Cancelled)

25. (Previously Presented) An energy distribution network comprising:
 - (a) at least one hydrogen generator for generating hydrogen using electric energy received from at least one source of electric energy;
 - (b) at least one hydrogen storage reservoir for storing at least some of the hydrogen produced by said at least one hydrogen generator; and
 - (c) at least one controller in communication with said at least one hydrogen generator and said at least one hydrogen storage reservoir for controlling the generation and storage of hydrogen, said at least one controller having a central processor and computer for receiving and processing data and for controlling the generation and storage of hydrogen based on said data, said data including data pertaining to a demand for hydrogen, data pertaining to availability of electric energy and data pertaining to the status of said at least one hydrogen generator.
26. (Original) An energy distribution network according to claim 25 wherein said hydrogen generator is a water electrolyser.
27. (Previously Presented) An energy distribution network according to claim 25, wherein the data pertaining to the availability of electric energy include price data.
28. (Cancelled)
29. (Previously Presented) An energy distribution network according to claim 25 wherein the data pertaining to availability of electric energy include availability of electric energy from renewable energy resources.

30. (Previously Presented) An energy distribution network according to claim 25 wherein the data pertaining to the status of said at least one hydrogen generator include the presence of an emergency.
31. (Previously Presented) An energy distribution network according to claim 25 wherein the data pertaining to the availability of electric energy include the presence of an interruption of electric energy.
32. (Cancelled)
33. (Cancelled)
34. (Cancelled)
35. (Cancelled)
36. (Previously Presented) An energy distribution network according to claim 25, wherein the data pertaining to the availability of electric energy is selected from the group consisting of the amount of energy available, the nature of power available, the time of availability of the energy, the type of energy source available, the unit price per increment of energy available, the duration of delivery of said energy resource, and combinations thereof.
37. (Cancelled)
38. (Original) An energy distribution network according to claim 25, further comprising a hydrogen delivery system for delivering hydrogen to a hydrogen user.
39. (Original) An energy distribution network according to claim 25, further comprising a compressor operably connected to at least one of said hydrogen generator and said hydrogen storage reservoir for compressing hydrogen to a desired pressure.

40. (Previously Presented) An energy distribution network according to claim 39 wherein said data that is received and processed by said controller includes data pertaining to the status of said hydrogen storage reservoir and wherein said controller controls the generation and storage of compressed hydrogen when the hydrogen pressure in said at least one hydrogen storage reservoir falls below a selected minimum value.
41. (Previously Presented) An energy distribution network according to claim 25 wherein said data that is received and processed by said controller includes data pertaining to the status of said hydrogen storage reservoir and wherein said controller controls the generation and storage of hydrogen when the amount of hydrogen stored in said at least one hydrogen storage reservoir falls below a predetermined amount.
42. (Previously Presented) An energy distribution network according to claim 25, wherein said at least one hydrogen generator generates hydrogen at a minimum desired pressure.
43. (Original) An energy distribution network according to claim 38, further comprising a user activation interface for receiving data concerning a demand for hydrogen.
44. (Cancelled)
45. (Previously Presented) An energy distribution network according to claim 25, wherein said data that is received and processed by said controller is selected from the group consisting of:
 - a. the amount of hydrogen required by a hydrogen user;
 - b. time of delivery of electric energy to said at least one hydrogen generator;
 - c. duration of period said electric energy is to be delivered to said at least one hydrogen generator;
 - d. electric energy level to be sent to said at least one hydrogen generator;

- e. hydrogen pressure in said at least one hydrogen storage reservoir;
- f. rate of change in hydrogen pressure in said at least one hydrogen storage reservoir;
- g. volume of said at least one hydrogen storage reservoir;
- h. price of electricity energy and price forecast; and
- i. combinations thereof.

46. (Previously Presented) A network according to claim 45, wherein said group further comprises:

- a. rate of electric energy level or the type of modulation of said electric energy to said hydrogen generator; and
- b. types of electric energy selected from fossil fuels, hydro, nuclear, solar and wind generated.

47. (Previously Presented) A network according to claim 25, further comprising at least one hydrogen user.

48. (Original) A network according to claim 47, wherein the hydrogen user comprises a device for converting hydrogen into electricity.

49. (Original) A network according to claim 25, wherein said at least one source of electric energy includes electrical conduits of a local area, wide area, or national area electricity distribution network.

50. (Original) A network according to claim 47, wherein the hydrogen user comprises a device for converting hydrogen into thermal energy.

51. (Original) A network according to claim 47, wherein said hydrogen user is an internal combustion engine.

52. (Original) A network according to claim 47, wherein said hydrogen user is an electricity generating fuel cell.
53. (Previously Presented) A network according claim 47, wherein said hydrogen user comprises at least one of a device for converting hydrogen into electricity and a device for converting hydrogen into thermal energy, and wherein said hydrogen user serves at least one of a plurality of geographic zones associated with at least one building.
54. (Original) A network according claim 53 wherein said building is selected from the group consisting of an office, plant, factory, warehouse, shopping mall, apartment, and linked, semi-linked, or detached residential dwelling.
55. (Previously Presented) A network according claim 53 wherein at least one of said geographic zones has a zone controller linked to said controller.
56. (Previously Presented) A network according to claim 47, wherein said hydrogen user is selected from the group consisting of a fuel cell, boiler, furnace, steam generator, turbine/motor generator and catalytic converter.
57. (Previously Presented) A network according to claim 47 wherein there is an exchange of data flow between said controller and each of said at least one source of electric energy, said at least one hydrogen generator and said at least one hydrogen user.
58. (Previously Presented) A network according to claim 25, wherein a plurality of said hydrogen generators are provided in said network, and wherein each of said hydrogen generators is in communication with said controller.
59. (Previously Presented) A network according to claim 25, wherein said at least one hydrogen generator receives electric energy from a plurality of electric energy sources and wherein data pertaining to availability of electric energy for each of said electric energy sources is received by said controller.

60. (Previously Presented) A network according to claim 47, wherein a plurality of hydrogen users are provided in said network, and wherein each of said hydrogen users is in communication with said controller.
61. (Previously Presented) A network according to claim 25 wherein said data is received and processed by said controller on an ongoing basis as said controller controls the generation and storage of hydrogen.
62. (Cancelled)
63. (Previously Presented) (Currently amended) A network according to claim 25, wherein the generation of hydrogen is dynamically controlled by said controller.
64. (Previously Presented) A network according to claim 25, wherein a plurality of said at least one hydrogen generators are disposed at remote locations from one another and wherein said plurality of hydrogen generators are in communication with said controller.
65. (Cancelled)
66. (Original) A network according to claim 25 further comprising a system for delivering hydrogen as fuel to a vehicle.
67. (Cancelled)
68. (Cancelled)
69. (Cancelled)
70. (Cancelled)
71. (Cancelled)
72. (Cancelled)

73. (Cancelled)
74. (Cancelled)
75. (Cancelled)
76. (Cancelled)
77. (Cancelled)
78. (Cancelled)
79. (Cancelled)
80. (Cancelled)
81. (Cancelled)
82. (Previously Presented) A network according to claim 25 wherein said at least one hydrogen storage reservoir comprises at least one hydride storage chamber.
83. (Previously Presented) A network according to claim 25 wherein said at least one hydrogen storage reservoir comprises at least one container for storing pressurized hydrogen.
84. (Original) A network as claimed in claim 25 wherein said at least one electric energy source includes an electricity grid.
85. (Original) A network as claimed in claim 84 wherein electricity for said electricity grid is produced by at least one primary energy resource.
86. (Original) A network as claimed in claim 85 wherein said at least one primary energy resource includes one of the following renewable and non-renewable resources: fossil fuels, nuclear, wind, solar and hydro.

87. (Original) A network as claimed in claim 85 wherein said at least one primary energy resource includes one of the following renewable resources: wind, solar and hydro.
88. (Previously Presented) A network as claimed in claim 25 wherein said data pertaining to availability of electric energy includes real time data.
89. (Previously Presented) A network as claimed in claim 25 wherein said data pertaining to availability of electric energy includes historical data.
90. (Previously Presented) A network as claimed in claim 25 wherein said data pertaining to availability of electric energy includes forecasted data.
91. (Previously Presented) A network as claimed in claim 84 wherein said data pertaining to availability of electric energy includes data pertaining to the price of electric energy from the electricity grid.
92. (Previously Presented) A network as claimed in claim 25 wherein said controller modulates the generation of hydrogen by said at least one hydrogen generator based on said data pertaining to availability of electric energy.
93. (Original) A network as claimed in claim 84 further comprising a device for converting hydrogen into electricity.
94. (Previously Presented) A network as claimed in claim 93 wherein said controller modulates the generation of electricity by said hydrogen conversion device based on said data pertaining to availability of electric energy.
95. (Original) A network as claimed in claim 94 wherein at least some of said electricity generated by said hydrogen conversion device is transmitted to said electricity grid.
96. (Original) A network according to claim 84 wherein said at least one electric energy source further includes at least one non-grid source of electric energy.

97. (Original) A network as claimed in claim 96 wherein electricity for said at least one non-grid source of electric energy is produced by at least one primary energy resource.
98. (Original) A network as claimed in claim 97 wherein said at least one primary energy resource includes one of the following renewable and non-renewable resources: fossil fuels, nuclear, wind, solar and hydro.
99. (Original) A network as claimed in claim 97 wherein said at least one primary energy resource includes one of the following renewable resources: wind, solar and hydro.
100. (Previously Presented) A network as claimed in claim 96 wherein said controller selects said electric energy source based on data including said data pertaining to the availability of electric energy.
101. (Original) A network as claimed in claim 100 further comprising a device for converting hydrogen into electricity.
102. (Previously Presented) A network as claimed in claim 101 wherein said controller modulates the generation of electricity by said hydrogen conversion device based on data including said data pertaining to availability of electric energy.
103. (Original) A network as claimed in claim 102 wherein at least some of said electricity generated by said hydrogen conversion device is transmitted to said electricity grid.
104. (Withdrawn) A process for controlling a hydrogen energy system comprising the steps of:
 - a. processing data concerning a demand for hydrogen;
 - b. processing data concerning the status of at least one hydrogen storage apparatus;
 - c. processing data concerning the status of at least one hydrogen generator;

- d. processing data concerning at least one energy source for said hydrogen generator; and
- e. controlling the generation, storage and delivery of hydrogen in accordance with desired parameters to meet said demand for hydrogen.

105. (Withdrawn) A process as claimed in claim 104 wherein said energy source data includes data pertaining to the cost of said energy.

106. (Withdrawn) A process as claimed in claim 104 wherein said energy source data includes data pertaining to the emissions associated with said energy source.

107. (Withdrawn) A process as claimed in claim 104 wherein said step of controlling the generation, storage and delivery of hydrogen is carried out in order to meet said hydrogen demand at the lowest available cost.

108. (Withdrawn) A process as claimed in claim 104 wherein said step of controlling the generation, storage and delivery of hydrogen is carried out in order to meet said hydrogen demand using energy having the lowest available emissions.

109. (Withdrawn) A process as claimed in claim 104 wherein said step of controlling the generation of hydrogen includes the step of modulating the amount of hydrogen generated by said hydrogen generator.

110. (Withdrawn) A process as claimed in claim 104 further comprising the steps of processing data concerning the status of at least one device for converting hydrogen into electricity and controlling the generation of electricity in accordance with desired parameters to meet a demand for electricity.

111. (Withdrawn) A process as claimed in claim 104 wherein one or more of said process steps are performed simultaneously.

112. (Withdrawn) A process as claimed in claim 104 wherein said data for at least one of said process steps is real time data.
113. (Withdrawn) A process as claimed in claim 104 wherein said data for at least one of said process steps is historical data.
114. (Withdrawn) A process as claimed in claim 104 wherein said data for at least one of said process steps is forecasted data.
115. (Withdrawn) A process for meeting a demand for hydrogen comprising the steps of:
 - a. determining the nature of the hydrogen demand;
 - b. determining the availability of energy from at least one energy source;
 - c. determining the status of hydrogen supply; and
 - d. controlling the generation and delivery of hydrogen as required in accordance with desired parameters to meet the hydrogen demand.
116. (Withdrawn) A process as claimed in claim 115 wherein said step of determining the status of hydrogen supply comprises the steps of determining the status of hydrogen storage and determining the status of hydrogen generation.
117. (Withdrawn) A process as claimed in claim 116 wherein said step of controlling the generation and delivery of hydrogen as required further comprises the step of controlling the storage of hydrogen as required.
118. (Withdrawn) A process as claimed in claim 116 wherein hydrogen is delivered from at least one of hydrogen storage and hydrogen generation.

119. (Withdrawn) A process as claimed in claim 115 wherein said step of determining the availability of energy from at least one energy source includes the step of determining the cost of said energy.
120. (Withdrawn) A process as claimed in claim 115 wherein said step of determining the availability of energy from at least one energy source includes the step of determining the emissions associated with said energy source.
121. (Withdrawn) A process as claimed in claim 117 wherein said step of controlling the generation, storage and delivery of hydrogen is carried out in order to meet said hydrogen demand at the lowest available cost.
122. (Withdrawn) A process as claimed in claim 117 wherein said step of controlling the generation, storage and delivery of hydrogen is carried out in order to meet said hydrogen demand using energy having the lowest available emissions.
123. (Withdrawn) A process as claimed in claim 117 wherein said step of controlling the generation, storage and delivery of hydrogen includes the step of modulating the amount of hydrogen generated as required.
124. (Withdrawn) A process as claimed in claim 115 further comprising the step of controlling the generation and delivery of electricity as required in accordance with desired parameters to meet a demand for electricity.
125. (Withdrawn) A process as claimed in claim 115 wherein one or more of said process steps are performed simultaneously.
126. (Withdrawn) A process as claimed in claim 115 wherein said step of determining the availability of energy from at least one energy source includes real time data.
127. (Withdrawn) A process as claimed in claim 115 wherein said step of determining the availability of energy from at least one energy source includes historical data.

128. (Withdrawn) A process as claimed in claim 115 wherein said step of determining the availability of energy from at least one energy source includes forecasted data.

EVIDENCE APPENDIX

Not Applicable

RELATED PROCEEDINGS APPENDIX

Not Applicable